



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/632,792 | 08/04/2003 | Yuki Amano | 241168US0 | 5557 |

22850 7590 11/01/2005

OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.
1940 DUKE STREET
ALEXANDRIA, VA 22314

EXAMINER

PENG, KUO LIANG

| | |
|----------|--------------|
| ART UNIT | PAPER NUMBER |
|----------|--------------|

1712

DATE MAILED: 11/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/632,792

Applicant(s)

AMANO ET AL.

Examiner

Kuo-Liang Peng

Art Unit

1712

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 9/30/05 Response.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) 11-12 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>8/4/03</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Applicant's election with traverse of Claims 1-10 in the response to restriction requirement filed on September 30, 2005 is acknowledged. The traversal is on the ground(s) that described in the Remarks, page 2, last paragraph to page 3, first paragraph. This is not found persuasive because of the following reason: Note that there are numerous references teaching the use of a surface modified inorganic oxide powder in a composite other than the specific polar resin composite set forth in the present invention. For example, Safford (US 2 832 748) discloses a composition comprising a polyethylene-polybutadiene blend and a surface-modified inorganic oxide such as silicas, etc. (col. 1, lines 15-21 and col. 8, lines 38-56) Therefore, Claims 11-12 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

The requirement is still deemed proper and is therefore made FINAL.

2. Now, Claims 1-10 are pending for consideration.

3. The abstract of the disclosure is objected to because of the presence of unnecessary words, such as "[Name of Document] Abstract" etc. . Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In the instant claims, it is not clear as to what the volatility of the “volatile organic components” refers to because “volatile” is a relative term.

In Claim 4 (lines 3-4), it is not clear as to how long is the long-chain alkylsilane.

In Claim 7 (line 3), it is not clear as to what “existing” refers to.

In Claim 10 (last line), the word “preferably” causes confusion because it is not clear as to what is the non-preferred embodiment.

In Claim 10 (last line from bottom), “R¹”, “R²” and “R³” are not defined.

In Claim 10 (2nd line from bottom), it is not clear as to “at least one of them” refers to.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-4 and 7-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Kobayashi (US 4 849 022).

Kobayashi discloses a surface modified silica by treating the silica with organosilicon compound i) and compound ii), subsequently removing the volatiles by a heat treatment. (col. 2, line 23 to col. 3, line 63 and Examples) As such, Examiner has a reasonable basis to believe that the surface modified silica contains residual volatiles in an amount falling within the range set forth in the present invention. In order to remove the volatiles, Kobayashi's heat treatment inherently must fulfill the requirements set forth in the instant claim. Otherwise, the silica will not be successfully surface modified. Kobayashi further teaches that the length of the heat treatment is required such that the surface modification reaction is completed and the volatiles removed. Note that some of the volatiles can result from the reaction. Therefore, the complete removal of the volatiles should

Art Unit: 1712

inherently occur after the reaction is completed. A catalyst can be used. (col. 4, lines 4-12)

7. Claims 1-3 and 7-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Shibasaki (US 5 843 525).

Shibasaki discloses a surface modified metal oxide by treating the metal oxide, such as silica, alumina, titana, etc. with a silane coupling agent of formula (II) or (III) wherein R' can be an alkyl group having 18 carbon numbers and subsequently with an organopolysiloxane of formula (I). Solvents can be used in both treating steps. (col. 2, line 19 to col. 3, line 57 and Examples) The solvents are removed at an elevated temperature. (col. 3, line 13 to col. 4, line 3 and Examples) As such, Examiner has a reasonable basis to believe that the surface modified silica contains residual volatiles in an amount falling within the range set forth in the present invention. In order to remove the volatiles, Shibasaki's heat treatment inherently must fulfill the requirements set forth in the instant claim. Otherwise, the metal oxide will not be successfully surface modified. Shibasaki further teaches that the length of the heat treatment is required such that the surface modification reaction is completed and the volatiles removed. (Examples) Note that some of the

Art Unit: 1712

volatiles can result from the reaction. Therefore, the complete removal of the volatiles should inherently occur after the reaction is completed.

8. Claims 1-4 and 7-10 are rejected under 35 U.S.C. 102(b) as being anticipated by JP726 (JP 05-139726).

JP726 discloses a surface modified alumina by treating the alumina with a long alkyl-containing silane compound of formula 1 and a polysiloxane of formula 2. ([0010]-[0013]) The polysiloxane can be methylhydrogenpolysiloxane.

(Examples) The process of surface treatment is further described in [0018] and Examples, wherein an amine catalyst and solvents can be used and, after surface treatment, the solvents are removed at an elevated temperature. As such, Examiner has a reasonable basis to believe that the surface modified silica contains residual volatiles in an amount falling within the range set forth in the present invention. In order to remove the volatiles, JP726's heat treatment inherently must fulfill the requirements set forth in the instant claim. Otherwise, the metal oxide will not be successfully surface modified. For Claim 3, JP726 further teaches the surface treatment and the solvent removal can be performed between 100 and 300°C. ([0018] and Examples) Note that some of the volatiles can result from the reaction. Therefore, the complete removal of the volatiles should inherently occur

Art Unit: 1712

after the reaction is completed. Thus, JP726's process does read on the limitation set forth in the instant claim.

9. Claims 1-3 and 8-9 are rejected under 35 U.S.C. 102(b) as being anticipated by JP976 (JP 63-043976).

JP976 discloses a surface modified filler such as silica and alumina by treating the filler with a long chain alkyl-containing alkoxysilane in a solvent such as isopropanol and water. The alkoxysilane can be a methoxysilane or an ethoxysilane. The surfaced treated filler can be dried at room temperature, followed by further drying at 110oC to 120oC. (page 3, upper left column and Example) Note that the boiling points of the solvent and the condensation by-products (i.e., methanol and ethanol) are below the temperature of the final drying step. As such, Examiner has a reasonable basis to believe that the surface modified silica contains residual volatiles in an amount falling within the range set forth in the present invention. In order to remove the volatiles, JP976's heat treatment inherently must fulfill the requirements set forth in the instant claim. Otherwise, the metal oxide will not be successfully surface modified. JP976 is silent on the specific process set forth in Claim 3. However, Claim 3 is a product-by-process claim. "Even though product-by-process claims are limited by and defined by the

Art Unit: 1712

process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process” In re Thorpe, 777 F. 2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

10. Claims 1-4 and 7-9 are rejected under 35 U.S.C. 102(b) as being anticipated by JP406 (JP 10-316406).

JP406 discloses a surface modified inorganic filler by treating the filler such as silica, titanium oxide, alumina, zirconium oxide, etc. with an alkyl alkoxysilane such as alkyl trimethoxysilane, in the presence of a catalyst and a solvent such as n-propanol. The treated filler is then heated up to 800oC and subsequently subjected to vacuum drying at 50oC 3mmHg for 8 hours. ([0006]-[0007] and [0013]-[0025]) Note that the boiling point of the solvent and the condensation by-product, methanol, is far below 800oC at normal pressure and 50oC at vacuum. Therefore, Examiner has a reasonable basis to believe that the surface modified filler contains residual volatiles in an amount falling within the range set forth in

Art Unit: 1712

the present invention. In order to remove the volatiles, JP406's heat treatment inherently must fulfill the requirements set forth in the instant claim. Otherwise, the metal oxide will not be successfully surface modified. JP406 is silent on the specific process set forth in Claim 3. However, Claim 3 is a product-by-process claim. "Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process" In re Thorpe, 777 F. 2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). The surface treating process can be carried out at a temperature higher than 200oC. ([0015])

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shibasaki in view of Kabayashi.

Shibasaki discloses a surface modified metal oxide, supra, which is incorporated herein by reference. As mentioned previously, the coupling agent can contain alkyls groups having 18 carbon atoms. Shibasaki is silent on the specific use of a catalyst together with the coupling agent. However, Shibasaki teaches that any known conventional method can be used for treating the metal oxide with the coupling agent. (col. 3, lines 25-36) Furthermore, it is well known in the art to utilize a catalyst together with a coupling agent in a surface treatment process. For example, Kabayashi teaches that a chemical known as a silanol condensation catalyst such as an amine catalyst, etc. can be used together with the coupling agent (col. 4, lines 4-20) The motivation is to facilitate the reaction between the coupling agent and the reactive groups on the metal oxide surface. In light of the benefit mentioned, it would have been obvious to one of ordinary skilled in the art at the time of the invention was made to incorporate a catalyst such as amine catalyst into Shibayashi's surface treating composition. The dilution of the coupling agent are exemplified in Examples.

Art Unit: 1712

13. Claims 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP976 in view of Kabayashi.

JP976 discloses a surface modified filler, supra, which is incorporated herein by reference. JP976 is silent on the use of a catalyst. Furthermore, it is well known in the art to utilize a catalyst together with a coupling agent (i.e., the long chain alkyl-containing alkoxysilane) in a surface treatment process. For example, Kabayashi teaches that a chemical known as a silanol condensation catalyst such as an amine catalyst, etc. can be used together with the coupling agent (col. 4, lines 4-20) The motivation is to facilitate the reaction between the coupling agent and the reactive groups on the metal oxide surface. In light of the benefit mentioned, it would have been obvious to one of ordinary skilled in the art at the time of the invention was made to incorporate a catalyst such as amine catalyst into JP976's surface treating composition.

14. The reference, US Application Serial No. 10/176,547, cited in the List of Related Cases filed on August 4, 2003 has been considered.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kuo-Liang Peng whose telephone number is


Art Unit: 1712

(571) 272-1091. The examiner can normally be reached on Monday-Friday from 8:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski, can be reached on (571) 272-1302. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

klp
October 28, 2005


Kuo-Liang Peng
Primary Examiner
Art Unit 1712